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ATTRITION IN BEHAVIORAL PARENT TRAINING

Attrition in Behavioral Parent Training Programs in Clinical and Community Settings: A Meta-analytic Review

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Abstract

It is estimated that approximately 16-20% of youth will develop a diagnosable behavior disorder. Behavioral parent training is a valuable approach to address disruptive behaviors by teaching parents how to effectively manage their child's challenging behavior with non-physical disciplinary techniques. While these programs are generally effective, attrition rates have been found to be as high as 60% in some cases. This review provides information about the characteristics commonly associated with these programs, the attrition rates of each program, and the general effectiveness of the programs. Meta-analytic procedures were implemented to identify contributing factors leading to withdrawal from intervention.

Keywords: parent training, behavioral parent training, parent management training, parent child interaction therapy

ATTRITION IN BEHAVIORAL PARENT TRAINING

Attrition in Behavioral Parent Training

Programs in Clinical and Community Settings: A Meta-analytic Review

Externalizing behavior problems characterized by aggression, hyperactivity, defiance, and impulsivity are highly prevalent among young children and adolescents. As many as 20% of children who exhibit conduct problems receive a clinical diagnosis, and many of these individuals contribute disproportionately to the high rates of juvenile delinquency and other social issues (Perou et al., 2013; Loeber, 1997). Consequently, there is an urgent need for effective behavioral interventions as early as possible to ward off potential negative outcomes before they occur. Behavioral parent training (BPT) is an empirically validated approach that has consistently produced positive results across a variety of settings and formats, while also maintaining effects over time (Kazdin, 1997). Despite the widespread success of these programs, attrition rates in these programs have frequently been as high as 40-60% (Kazdin, 1996; Armbruster & Kazdin, 1994; Chacko et al., 2016). However, research examining the problem of attrition, including factors contributing to these high dropout rates, has been somewhat limited and, thus, is a primary focus of the present study.

The Significant Costs of Disruptive Behaviors in Youth

Providing children with high quality treatment at the earliest signs of atypical development is imperative, as behavior disorders tend to be both chronic and progressive. When left unattended, these disorders often progress and ultimately produce costly, high-risk outcomes for both the child and the families involved. (Lopez-Romero, Romero, & Andershed, 2015). According to the American Psychiatric Association (2013), children who suffer from chronic behavior problems develop significant impairments in their

social, academic, and occupational functioning. In part, these impairments stem from callous-unemotional traits (Haas, Waschbusch, King, & Walsh, 2015) that are present in as many as 50% of children who are clinically referred for externalizing behavior problems (Frick & Dickens, 2006; Waschbusch, Walsh, Andrade, King, & Carrey, 2007). These traits, which involve an overall lack of remorse or concern for the consequences of one's actions, lack of care for others, and a disinterest in developmental betterment, tend to alienate children and eventually develop into more serious deviant behavior (Frick, Ray, Thornton, & Conn, 2014). Oftentimes, this lack of concern for oneself leads to frequent drug or alcohol use and other unhealthy, antisocial behaviors during adolescence, which frequently carry over into adulthood, manifesting in the form of alcoholism or drug addiction and Antisocial Personality Disorder (APD) (Frick, Lahey, Christ, Loeber, & Green, 1991; Lutz, McClure, & Armstrong, 2017). Additionally, in regard to academics, it is estimated that up to 61% of children who have CD and 48% of children who have Attention-Deficit/Hyperactivity Disorder (AD/HD) also have co-morbid learning disabilities (Frick, Lahey, Christ, Loeber, & Green, 1991; Sahoo, Biswas, & Padhy, 2015). These disabilities place children at greater risk for failure in school and dropping out prior to graduation, increasing the probability that these children will enter into the juvenile justice system during adolescence (Kazdin, 1987). In addition to the detrimental impact that these negative experiences may have on the individual, the larger-scale economic costs to society are substantial. For example, statistics show that the juvenile justice system alone costs United States taxpayers between five and six billion dollars annually to maintain (Justice Policy Institute, 2009). Given that many of these youth will also have an increased need for prison services, psychiatric services, and other social

services, there are tremendous financial costs for addressing challenging behaviors after they have grown into more serious conduct problems (Kazdin, 1987). It is estimated that, by the age of 28, individuals suffering from Conduct Disorder (CD) are up to ten times more likely to struggle with these challenges compared to those who do not (Scott, Knapp, Henderson, & Maughan, 2001). Finally, as the child ages, the financial cost of unemployment and public assistance is high (Kazdin, 1987). In order to more thoroughly understand behavior problems and the negative impact that they have at both the individual and societal levels, it is important to adopt a developmental perspective to see how these issues first begin to take shape.

Understanding the Developmental Trajectory of Challenging Behaviors in Youth

Within the first few years of development, it is not uncommon for children to begin to exhibit broad range of externalizing or disruptive problem behaviors (Campbell, 1995). To a certain degree, challenging behaviors occur naturally in children's early development as they navigate a trial and error phase of learning to engage in more prosocial behaviors (Tremblay, 2010). As such, parents may often be hesitant to seek professional help in the early years as many of the symptoms of more serious behavioral disorders often appear to be "normal" child behavior. For example, it is considered normative for children to exhibit certain levels of noncompliant or aggressive behaviors around preschool age prior to socialization (Campbell, 1995). While many children seem to grow out of these behaviors as they become more socialized and mature, others experience heightened levels of behavior problems that begin in early childhood and often persist into adulthood (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). For this subset of children, behavioral problems such as aggression, hyperactivity,

noncompliance, or other antisocial behaviors persist and exceed normative behavior patterns as the child develops. Longitudinal studies examining behavior patterns during this critical period in child development help to illustrate the heterogeneity in the development of behavioral problems. Studies in this area have identified between three and five distinct trajectories of disruptive behaviors from early childhood through adolescence. One such study examined physical aggression in a nationally representative sample of over 10,000 boys and girls (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). In this study, the majority of children (52%) followed a moderate desisting trajectory, indicating that they exhibited occasional aggressive behavior as toddlers that decreased to relatively infrequent disruptive behaviors by pre-adolescence. About one-third of the children in this study followed a low desisting trajectory, reflected in infrequent use of aggression as toddlers and virtually no aggression by pre-adolescence (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). A smaller minority of children, about 17%, followed an elevated, stable trajectory that persisted through adolescence (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006). These and similar findings imply that, for this subset of children, early intervention may be advantageous as these atypically-developing children are the most likely to be diagnosed with behavior disorders and those at the greatest risk for ongoing behavior problems down the road. According to Campbell (1995), once children reach school age, parents should begin to identify behavior problems as atypical if they are (a) severe enough to interfere with the child's normal functioning, (b) have a notable increase in frequency and intensity, (c) occur across settings, (d) are not an isolated incident, and (e) are not due to a short-term change in the child's environment. Disruptive behaviors of this nature represent one of

the primary reasons for referrals for psychological services, with as many as two-thirds of those referred going on to meet criteria for a disorder (Webster-Stratton, Kolpacoff, & Hollinsworth, 1988).

Throughout the literature, children are most commonly diagnosed as having one or a combination of the three broadly defined, disruptive behavior disorders: Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and Attention-Deficit/Hyperactivity Disorder (AD/HD) (e.g. Webster-Stratton, Reid, & Hammond, 2001). However, many behavioral disorders may go undiagnosed for years due to hesitance among the parents to seek out professional assistance for the problem. It is not so much that parents miss the signs of these disorders, but rather they may dismiss them as normal, as the realization that their child's behavior may require a comprehensive professional evaluation may instill feelings of pain or fear in parents who have tried to support their child, or it might be accepted and internalized as a personal failure by the parent (Ohan, Visser, Moss, & Allen, 2013). Still, accepting that a child may have a more serious problem and addressing it responsibly is key in order for parents to provide children with the specialized care that they may need.

Risk Factors for Challenging Behaviors

Researchers have identified age of onset as an important predictor of the developmental pattern of challenging behaviors as they evolve through early childhood, adolescence, and adulthood (Thompson et al, 2011; Moffitt, 2007; Patterson, 1996). Moffitt (2007) and Patterson (1996) posit that children who begin to exhibit atypical levels of challenging behaviors in early childhood tend to see greater persistence and severity of problems across all stages of life than those who do not experience onset of

conduct problems until later stages of development (Lopez-Romero, Romero, & Andershed, 2015). In contrast to this early-onset group, studies suggest that there may be a subset of children who do not exhibit disruptive behaviors until adolescence, deemed adolescent-onset specific. Behaviors exhibited by the adolescent-onset group reflect a period of rebelliousness and rejection of conventional values, often moderated by exposure to deviant peers (Lopez-Romero, Romero, & Andershed, 2015). These challenging behaviors are typically limited to adolescence and then decline as youth age (Lopez-Romero, Romero, & Andershed, 2015). On the other hand, the problem behavior seen in the childhood-onset group tends to be influenced by more salient variables, such as a poor socialization environment or biological variables (Lopez-Romero, Romero, & Andershed, 2015). Consequently, it is critical that parents and practitioners understand how behaviors develop and knowing that significant challenging behaviors in young children will likely persist and develop into more serious difficulties for the youth (Nagin & Tremblay, 1999; Barker & Maughan, 2009; Shaw, Gilliom, Ingoldsby, & Nagin, 2003).

Research shows some of the primary factors that put children at greater risk for chronic behavior problems include parental psychopathology, sociodemographic and socioeconomic (SES) characteristics, caregiving context (e.g. harsh parenting practices) and child attributes (e.g. temperament) (Trentacosta, Hyde, Goodlett, & Shaw, 2013). With regards to child temperament, it seems that some children may simply be more predisposed to develop challenging behaviors as a result of their temperament or certain attributes that they possess (Barker, Oliver, Viding, Salekin, & Maughan, 2011). Further, children who struggle with emotional self-regulation or have a fearless temperament, for example, are much more likely to engage in challenging behaviors when compared to

those who do not (Trentacosta, Hyde, Goodlett, & Shaw, 2013; Trentacosta & Shaw, 2009; Barker et al., 2011).

Parental psychopathology has also consistently been found to be a significant predictor of disruptive behavior patterns and social skill deficits in children (Breux, Harvey, & Lugo-Candelas, 2014). More specifically, studies suggest maternal depression, substance abuse, and antisocial disorder are among the most prevalent conditions among parents of clinic-referred children (Frick et al, 1992; Robins, 1996; Xu, Neece, & Parker, 2014). The prevalence of these mental health concerns among parents of children with externalizing behavior problems appears to reflect the bidirectional or transactional relationship that exists between the parent and child. This idea of bidirectionality places emphasis on dynamic, parent/child interactions as being mutually influential for certain behaviors (Lerner, Lewin-Bizan, & Warren, 2011). For example, parents who struggle to manage their child's behavior may begin to feel incompetent as parents, which might then lead to increases in depression or substance abuse. The additional challenges that accompany depression and substance abuse (e.g., difficulty activating, negative cognitions, etc.) may then lead to further ineffective parenting, which would likely breed more problem behavior in children (Harvey, Stoessel, & Herbert, 2011).

In addition to the direct impacts on the parent-child interaction, there is evidence that children's challenging behavior is also associated with substantial strain on the parents' marriage and increases in the likelihood of divorce (Nicholson & Sanders, 1999). This relationship conflict often results in diminished parental responsiveness, affection, and involvement, which is associated with greater challenging behavior in the child (Patterson, DeBaryshe, & Ramsey, 1989).

In terms of sociodemographic characteristics thought to be associated with greater risk for challenging behaviors in youth, studies have shown that maternal age, single parent households, and overcrowded households are all correlated with disruptive behaviors (Trentacosta, Hyde, Goodlett, & Shaw, 2013). Again, the association between these risk factors and disruptive behavior in children seems to stem from an overall lack of resources, leading to barriers in the capacity of parents to utilize consistent, effective parenting practices and a poor environment for socialization to occur. The economic stress of being a young, single mother, for example, may lead to less frequent verbal and cognitive stimulation due to more limited parent-child interactions, as well as greater reliance on ineffective physical discipline, authoritarian parenting styles, or other coercive measures (Murray, Irving, Farrington, Colman, & Bloxsom, 2010). Similarly, households crowded with multiple children require the parents to dilute their resources (i.e. money, time, energy) among children as sibling size increases, which may incite attention-seeking behaviors, leading to an increased strain on the parents' and children's relationships. (Durand, Hieneman, Clarke, Wang, & Rinaldi, 2013). Studies also suggest that children who come from low-income, low-education households are much more likely to develop disruptive behaviors due to difficulties with accessing treatment, a lack of knowledge of effective parenting practices, and increased parental stress (Patterson, DeBaryshe, & Ramsey, 1989; Leijten, Raaijmakers, de Castro, 2013)).

Studies show that parents who provide a high degree of support, monitoring, and consistent discipline experience fewer disruptive behavior patterns and significantly more desirable outcomes (Querido, Warner, & Eyberg, 2002; Loona & Kamal, 2012). Specifically, a more authoritative parenting style has been associated with increases in

child prosocial behavior and decreases in challenging behaviors (Padilla-Walker, Carlo, Christensen, & Yorgason, 2012). Concurrently, in a review by Sangawi, Adams, & Reissland (2015), multiple studies are referenced in which negative, parental caregiving strategies (e.g. inconsistent discipline, neglect, corporal punishment, and lack of support) may potentially lead to increases in both internalizing and externalizing behavior problems in young children (Chang, Schwartz, Dodge, & McBride-Chang, 2003; Mulvaney & Mebert, 2007; Van As & Janssens, 2002). With knowledge of these risk factors that contribute to chronic behavior problems, their developmental trajectory, and the potential negative consequences that may transpire as a result, researchers have ample evidence to justify their efforts to develop the most effective prevention and treatment strategies.

Behavioral Parent Training to Address Challenging Behaviors in Youth

Over the past few decades, a substantial amount of attention has been given to behavioral parent training (BPT) interventions, given the significance that research has attributed to parenting and family variables in the child's early developmental stages. In a review, Kazdin (1997) highlights the importance of family involvement in the treatment of childhood conduct disorders by identifying several family-involved approaches that have been frequently evaluated in clinical trials, including functional family therapy, BPT, and multi-systemic therapy. Due to the success of BPT in preventing and treating a variety of behavior problems in children, it has received the most attention over the years (Kazdin, 1997), and this approach has consistently found to be an effective approach. One meta-analytic review, synthesizing the results of 77 published studies on BPT, examined specific components that have been commonly associated with parent training

program effectiveness (Kaminski, Valle, Filene, & Boyle, 2008). Program components that were consistently associated with larger effects, after controlling for any differences attributable to research design, included increasing positive parent-child interactions, teaching parents the importance of parenting consistency, how to properly use time out procedures, emotional communication skills, and requiring parents to practice new skills with their children during sessions. Meanwhile, smaller effects were consistently associated with teaching parents to promote children's social, academic or cognitive skills, teaching parents problem solving, and providing other, additional services (Kaminski et al., 2008). The effectiveness of a popular training program, the Incredible Years parent training (IYPT) program, was examined in a recent meta-analytic review of 50 studies identified as either treatment studies, selective prevention, or indicated prevention studies (Menting, Orobio de Castro, & Matthys, 2013). Results of this study indicated that the IYPT program is an effective intervention regarding child behavior, with positive effects found for both disruptive behavior ($d = .27$) and prosocial behavior ($d = .23$). Additionally, larger parent-rated effect sizes were found for treatment studies ($d = .50$) than for prevention studies ($d = .13$ for selective prevention; $d = .20$ for indicated prevention) (Menting et al., 2013). In another meta-analysis examining the efficacy of the Triple P Positive Parenting Program, which is one of the most widely cited BPT training programs, researchers assessed both the effectiveness of Triple P in children's behavior problems compared to the control groups and the degree to which post-intervention effects were maintained over time in the intervention group (Graaf, Speetjens, Smit, Wolff, & Tavecchio, 2008). Fifteen studies were included in this analysis, all of which had implemented a Level 4 Triple P intervention, which is an intensive parent training

program designed for children with more severe behavioral difficulties. Specifically, the Level 4 intervention may be delivered in a group or individual format and covers Triple P's 17 core positive parenting skills that can be adapted to a wide range of parenting situations. Results of this analysis indicated that this intervention was highly effective at reducing disruptive behaviors in children across studies, producing a large mean effect size ($d = 0.88$), with further improvements in long-term follow-up ($d = 1.00$) (Graaf et al., 2008), suggesting that the positive effects of BPT programs are maintained well over time. With decades of empirical evidence to support it, it is no wonder why BPT is considered the "gold standard" for preventing and treating conduct problems in young children (Kazdin, 1997).

Components of Behavioral Parent Training

As the name might suggest, behavioral parent training is designed to educate and equip the parents of conduct-problem children with the tools necessary to effectively prevent, manage, and improve their child's disruptive behaviors. As research has shown, disruptive behavior in children is often perpetuated by negative parent-child interactions caused by harsh punishments (i.e. frequent spanking, grabbing, or hitting) and inconsistent disciplinary practices (i.e. failing to follow through with demands or proposed punishments) being implemented by the parents (Tung & Lee, 2014). In response to this pattern, the ultimate goal of BPT is to promote positive parent-child interactions through the use of consistent, effective parenting strategies that are designed to decrease undesirable behaviors in children while increasing more desirable behaviors. More specifically, based on principles of operant conditioning and social learning theory, BPT empowers parents with the ability to address challenging behaviors by shifting the

focus from various forms of punishment and coercive measures to more effective applications of positive reinforcement and supportive interactions (Connolly, Sharry, & Fitzpatrick, 2001; Gross et al., 2003). Studies show that the sense of empowerment gained from BPT, coupled with the positive changes that parents see in their children, is associated with high levels of parent satisfaction (Webster-Stratton, 1989), as well as significant decreases in stress and a greater sense of competence in the parental role (Pisterman et al., 1992).

In addition to its therapeutic impact on parents and positive effects on child behavior patterns, it appears that the success of BPT can be partially attributed to the generalizability of these programs (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderbunk, 1991; Sander & Dadds, 1982). While the majority of studies on BPT are clinic-based, McNeil et al. (1991) provided evidence that effects generalize to the school setting, with children in their study exhibiting clinically significant improvements in classroom noncompliance and other disruptive behaviors following BPT. Further empirical evidence supports this idea, with studies also demonstrating successful outcomes following self-directed training programs (e.g. Markie-Dadds & Sanders, 1999) and telephone-assisted programs (e.g. Connell, Sanders, & Markie-Dadds, 1997). These, and similar results from other studies, provide supporting evidence that BPT is generalizable, not only across settings, but across treatment-delivery formats as well (Webster-Stratton, 1984; Forehand & McMahon, 1981; Webster-Stratton, 1990).

Disparities in Treatment Outcome

Despite its popularity and reported success across settings and formats, behavioral parent training is by no means a panacea (Sanders, Markie-Dadds, Tully, & Bor, 2000).

Training programs, which typically involve weekly sessions with one or more trained practitioners, may last anywhere from one to five months and require a significant amount of commitment, dedication, and resources in order for parents to experience any lasting benefits (Thomas & Zimmer-Gembeck, 2007; Reyno & McGrath, 2006). Studies consistently reveal substantial disparities in terms of BPT effectiveness across certain populations, as some families experience difficulties with some or all of these necessary requirements for treatment success (Reyno & McGrath, 2006). According to Webster-Stratton & Hammond (1990), the families who struggle the most with training programs are those whose lives are already made exponentially more difficult by other forms of adversity, including, but not limited to, low income, marital conflict, single parenthood status, parental mood disturbance, and abnormally high levels of stressful life events. More recent research is consistent with these findings, identifying these and other family demographic characteristics (e.g. larger family size, lower education level, younger maternal age, minority status) to be among the most significant predictors of treatment outcome in BPT with the described factors negatively impacting treatment efficacy (Reyno & McGrath, 2006). Additionally, the severity of the child's externalizing behaviors, generally defined as the frequency and intensity of the child's antisocial behaviors and conduct problems present at the time that treatment is administered (Assemany & McIntosh, 2002), has been consistently reported throughout the literature as a relevant contextual variable in predicting treatment success. More specifically, severe child behavior may lead parents to experience higher levels of stress and frustration throughout the treatment process that may impact their ability to effectively apply learned principles and may ultimately lead to drop out (Kazdin 1990, 1995).

Attrition from Behavioral Parent Training Programs

The previously described contextual variables are commonly cited reasons for inconsistencies in terms of positive outcomes of Behavioral Parent Training. Miller & Prinz (1990) identified factors that lead to negative treatment outcomes to include premature attrition from treatment, lack of parent engagement in the treatment process, and failure to maintain positive changes over time. Of these potential treatment outcomes, attrition from treatment persists as the most substantial issue in BPT with reported dropout rates as high as 40 to 60% in some cases, which are comparable percentages to those seen in other child therapies (Kazdin & Wassell, 1998; Kazdin, 1996). Despite these high rates of attrition in BPT programs, research addressing the problem of attrition is considerably more limited than the research that is available on treatment effectiveness (Assemany & McIntosh, 2002; Stoiber & Kratochwill, 2000; Prinz & Miller, 1994). In fact, throughout the BPT literature simply reporting attrition data is relatively uncommon, as evident in a review by Forehand, Middlebrook, Rogers, and Steffe (1983), in which only 49% of the 45 studies that were examined reported attrition data, suggesting a general lack of acknowledgment of the issue throughout the literature. More recently, in a meta-analysis examining the efficacy of PCIT and the Triple P parenting intervention in 32 studies, only 58% of studies reported any attrition data (Thomas & Zimmer-Gembeck, 2007). In the present study, out of the 299 BPT articles that were reviewed, only 75 of these studies reported sufficient data for evaluating attrition and met other inclusion criteria to be included in the subsequent meta-analysis. Recommendations were made in another recent meta-analysis, based on missing information that authors encountered across studies, for more studies to include attrition information, including the number of

participants that dropped out and how their data was handled in the analysis (Kaminski, Valle, Filene, & Boyle, 2008). This highlights another important consideration in the BPT research, as failure to statistically control for attrition may present problems of sampling bias and compromise the external validity of a study, making it difficult to generalize program results. Additionally, attrition reduces sample size and statistical power and may affect a study's internal validity, compromising random assignment and violating the assumption of homogeneity between comparison groups (Baker, Arnold, & Meagher, 2010). Of the studies included in this analysis, 60% failed to report any specific methods of statistically controlling for attrition. Of the studies that did report methods of controlling for attrition, 66% reported implementing an intent-to-treat analysis, which is a method that allows for inclusion of data from all participants who entered treatment and not just completers, providing a more rigorous assessment of treatment efficacy. The remainder of studies reported using other methods to control for attrition including ANOVA and post hoc comparisons, random regression modeling, and exclusion of participants with missing data from subsequent analyses.

High rates of attrition and inadequate focus on the issue throughout BPT literature has a number of important implications. First, from a treatment perspective, high rates of attrition represent an inefficient use of resources, such as professional hours that could be spent with families who are willing and able to obtain the maximum benefit of treatment (Frankel & Simmons, 1992). Also, families who are in the greatest need of professional assistance are often not receiving the full benefit of treatment (Barrett et al., 2009), as they are typically the ones who are most likely to drop out of treatment prematurely, as alluded to in the previous section on treatment effectiveness. This is evident in a study by

Kazdin and Wassell (1998), in which families who dropped out of treatment showed greater socioeconomic disadvantage, higher levels of child deviance and impairment, more difficult living circumstances, and more barriers associated with completing treatment than did treatment completers. These results indicate disparities between dropouts and completers at pretreatment in terms of their family demographics, severity of child dysfunction, and socioeconomic standing. During treatment, those who eventually dropped out were more averse to the entire treatment process (e.g. viewed treatment as more demanding, less relevant, weaker bond with therapist, and more obstacles in attending treatment) (Kazdin & Wassell, 1998), reflecting the need for more individualized attention and strategies to maximize the benefit of treatment among those at risk of dropping out. Additionally, according to this study, there is a significant relationship between treatment completion and improvement in child behavior, even when controlling for socioeconomic disadvantage, child dysfunction and impairment, parent psychopathology and stress, and other barriers to treatment participation. Based on the mean scores of therapist and parent ratings, 75% of treatment completers and only 20% of dropouts experienced significant improvements in child behavior (Kazdin & Wassell, 1998), lending credence to the theory that lack of improvement may be a contributing factor to dropout.

Focus of the Present Study

Within the context of behavioral prevention and treatment programs, specifically parent training programs, meta-analyses have been a commonly used method to examine the overall effectiveness of these interventions on child behavior problems. However, to our knowledge, the current study is only the second comprehensive meta-analytic review

to focus specifically on the issue of attrition in parent training. With that in mind, while considering the effectiveness of these programs, the goal of this review is to highlight the contextual variables that contribute to high attrition rates in clinic-based programs and provide mean effect sizes to quantify the strength of the relationship between these variables and dropout. Based on findings from previous literature on BPT and on the available literature on variables associated with high rates of attrition, researchers hypothesized that when subjected to meta-analytic procedures, family demographic variables (i.e. SES, age of parent) would be reliable predictors of attrition rate. More specifically, families from disadvantaged backgrounds and younger parents would be associated with significantly higher attrition rates. Additionally, variables related to the child (i.e. age of child, target behavior) would be reliable predictors of attrition, with older children and target behavior groups in which the majority of children had been clinically diagnosed (e.g. AD/HD, ODD/CD, co morbid disorders) being associated with higher rates of attrition. Lastly, it was hypothesized that treatment-related variables (i.e. treatment delivery format, program provider, number of sessions, level of intervention, caretaker participation) would be associated with attrition. Specifically, it was hypothesized that individually administered interventions, “professional” program providers, shorter interventions (measured by fewer sessions), primary interventions, and mixed (mother and father) training groups would be associated with lower attrition rates.

It is also important to draw distinctions between our review and the previous meta-analysis on this topic (i.e. Reyno & McGrath, 2006). Reyno and McGrath (2006) were effective in isolating demographic variables (i.e. low income, single parent status, education/occupation, family size) and other variables related to the parent, child, or

families involved in treatment (i.e. severity of child behavior, maternal psychopathology/depression), as well as illustrating the association between these variables and dropout/treatment outcome. However, specific predictor variables related to treatment programs (i.e. number of sessions, treatment delivery format, program provider) were not a focus of the study. In addition to examining demographic and other family-related variables, researchers in the present study attempted to isolate these potential moderators related to program format and delivery to determine possible association with dropout. Additionally, researchers in the present study will be conducting follow-up analyses based on the location of treatment (i.e. clinic, school, or community centers) to determine if there is any variability in effect sizes by treatment location.

Method

Search Procedures and Inclusion Criteria

Computer searches were conducted using the following databases via EBSCOhost: PsycINFO, PsycArticles, and ERIC. Studies consisting of the keywords “parent training”, “behavioral parent training”, “parent management training”, and “parent child interaction therapy” were screened. Only peer-reviewed articles were included in the analysis. Unpublished studies (e.g. doctoral dissertations) were not reviewed. The primary focus of the study was on the problem of attrition in behavioral parent training programs with an analysis of both commonly cited and novel predictor variables. Therefore, studies that did not report rates of attrition or provide any information on variables that predicted dropout were the first ones excluded from further review. Upon initial review of these studies, there did not appear to be any treatment- or

study-related characteristics that predicted whether or not attrition data was reported. Secondly, studies that included children exhibiting internalizing behavior problems (i.e. social withdrawal, depression, feelings of loneliness), rather than externalizing behavior problems (i.e. oppositional behavior, aggressive behavior, conduct problems), were excluded. Third, only the studies involving clinic- or community-based interventions were included in subsequent analyses for the present report. It should be noted that studies involving school-based interventions were also reviewed and were included in a separate analysis. Studies that met these criteria were further classified as individual or group based interventions that fell into either the primary, secondary, or tertiary classification.

Following the initial computer search, secondary searches were conducted. More specifically, the reference sections of previously published meta-analyses and reviews of behavioral parent training were examined for additional relevant studies. Publication dates of articles included in analyses ranged from 1980 to 2015. Seventy-five studies that were located met complete inclusion criteria, of which, fourteen were school-based interventions and, thus, not included in this study.

Study Coding

Studies meeting inclusion criteria were coded on several variables including: child and parent demographic characteristics (e.g. age, sex, socioeconomic status), child's target behaviors (e.g. AD/HD, ODD/CD, Mixed/Comorbid, "General" behavior problems), treatment delivery format (e.g. individual or group-based), level of intervention (e.g. primary, secondary, or tertiary), program provider (e.g. licensed

clinicians, trained therapists, social workers), and number of sessions. Variables were independently coded by two graduate students and one undergraduate student.

Data Analysis

All analyses were conducted via the Comprehensive Meta-Analysis (CMA) software package. Data was analyzed under a fixed-effects model with the assumption that there is a theoretical true effect size, attrition rate in this case, across studies. Based on the standardized nature of BPT interventions, it was decided that this was the most appropriate model for subsequent analyses. Effect size was calculated utilizing a point estimate of the mean weighted attrition rate across all studies. Homogeneity across studies was tested using the “within-class goodness-of-fit” statistic, or Q_{within} (Johnson, 1993). A significant Q_{within} statistic suggested heterogeneity within the set of included studies and the need for moderator analyses. Statistical variation between categories within outcome variables was tested with the “between-class goodness-of-fit” statistic, or Q_{between} . Significant Q_{between} statistics indicated that the magnitude of the effect differs between categories of moderator variables.

Results

Overall Attrition

Based on the fixed-effects model, the mean weighted attrition rate across all trials was 26.2%. Further, variability in effect sizes was greater than what would be expected due to chance, $Q(81) = 317.414$, $p < .001$. This finding suggests the possible presence of variables that may moderate effect size. Moderator and meta-regression analyses were conducted to identify those potential variables, and the results of these analyses are summarized below.

Socioeconomic Status

A moderator analysis was conducted to examine the relation between SES, categorized as either disadvantaged ($n=29$) or non-disadvantaged ($n=39$), and attrition rate. Samples were categorized, into disadvantaged and non-disadvantaged, based on categorization used in previous meta-analyses (e.g. Leijten, Raaijmakers, Castro, & Matthys, 2013; Lundahl, Risser, & Lovejoy, 2005) and national standards relating to mean family income, parent level of education, Hollingshead scores, and parent unemployment status. More specifically, samples were classified as disadvantaged if the majority of participants in the sample had a mean family income that fell below the poverty line, had a low level of education (i.e. high school or less), were unemployed or held jobs that did not generate enough income to exceed the poverty level, or fell into the low SES category based on Hollingshead scores. Dichotomous categorization was used due to the lack of a continuous measure (e.g. education level, income) that was used across all studies. Socio-economic status was not found to moderate attrition rate, as the mean weighted attrition rate was not significantly higher for trials in which participants were from disadvantaged backgrounds, 26.3%, relative to studies in which participants were from non-disadvantaged backgrounds, 25.9%, $Q_{\text{between}}(1)=.05$, $p=.82$.

Age (Parent and Child)

A regression analysis was conducted to examine the association between parent age, entered as a continuous variable, and attrition. Age of the parent was found to be a significant moderator of attrition rate, $Q=4.11$, $p<.05$, with older age being associated with higher rates of attrition. A second regression analysis was conducted to examine the association between child age, also entered as a continuous variable, and attrition. Age of

the child was also found to be a significant moderator of effect size, $Q = 6.56$, $p < .05$, with older children being associated with higher rates of attrition.

Target Behaviors

Target behaviors across studies generally fell into four categories: ADHD ($n=8$), ODD or CD ($n=14$), mixed/co morbid disorders ($n=8$), or were identified as “general” behavior problems (i.e. conduct problems, externalizing behavior problems, or antisocial behavior). The majority of studies ($n=48$) examined the effect that BPT has on “general” behavior problems. Moderator analyses were conducted to examine the association between target behaviors and attrition. Analyses revealed that there was no significant difference in attrition rate between studies in which participants fell into the ADHD category, 17.2%, and those that included participants in the ODD/CD category, 20.7%. There was, however, significant variation in attrition rate between “ADHD” studies and “mixed/comorbid” studies, 31.8%, $Q_{\text{between}}(1)=10.77$, $p < .01$, as well as “ADHD” studies and “general behavior problem” studies, 28.4%, $Q_{\text{between}}(1)=9.89$, $p < .01$. However, these results should again be interpreted with caution as the number of studies that were classified as “ADHD” or “mixed/comorbid” were limited. Additionally, there was significant variation between attrition rates in “ODD/CD” studies and “mixed/comorbid” studies, $Q_{\text{between}}(1)=9.20$, $p < .01$, as well as “ODD/CD” studies and “general behavior problem” studies, $Q_{\text{between}}(1)=9.65$, $p < .01$.

Treatment Delivery

Moderator analyses were conducted to determine if parent-training programs that offer parents individualized “one-on-one” treatment sessions ($n=24$) are more successful, in regards to retention, relative to those that offer parents training sessions in a group

format ($n=46$). The fixed-effects analysis revealed that there was no significant difference in attrition rates between individually-administered, 25.1%, and group-administered treatments, 27.6%, $Q_{\text{between}}(1)=1.45$, $p=.23$. However, attrition rates in treatment programs that had both an individual and a group component ($n=12$), 11.1%, were significantly lower than those that were only individual, $Q_{\text{between}}(1)=20.53$, $p<.01$, and only group, $Q_{\text{between}}(1)=30.94$, $p<.01$. However, these results should be interpreted with caution as only 12 trials were classified as having both an individual and a group component.

Program Provider Credentials

Provider credentials, classified as either “professional” or “non-professional” based on level of education and experience in a treatment setting, was found to be a significant moderator of attrition, $Q_{\text{between}}(1)=6.14$, $p<.05$. The attrition rates of programs that employ “professional” treatment providers ($n=50$) (e.g. licensed psychologists, trained therapists/clinicians, masters/doctoral students, and professionals in social work, psychology, or related field), 25.4%, were significantly lower than those that employ “non-professional” treatment providers ($n=20$) (e.g. parent leaders, group facilitators, school personnel), 29.6%.

Number of Sessions

A meta-regression was conducted to examine the relation between length of intervention, measured by number of parent-training sessions, and attrition rate. When entered as a continuous variable, number of treatment sessions was not found to moderate the rate of attrition, $Q=1.57$, $p=.25$.

Level of Intervention

Moderator analyses were conducted to determine if there was significant variation in attrition rates between primary, secondary, and tertiary interventions. Primary interventions were those that were identified as preventative in nature and were administered to parents, regardless of risk status, when no behavior problems were present. Secondary interventions were those designed for parents whose children were at risk of developing behavior problems. Tertiary interventions were those implemented whenever children were already exhibiting elevated levels of externalizing behavior. Analyses revealed that attrition rates across primary interventions, 21.2%, were significantly lower than both secondary interventions, 29.9%, $Q_{\text{between}}(1)=17.73$, $p<.01$, and tertiary interventions, 25.3%, $Q_{\text{between}}(1)=4.26$, $p<.05$. Additionally, there was significant variation between attrition rates in secondary and tertiary interventions, $Q_{\text{between}}(1)=6.09$, $p<.05$. It is noteworthy, however, that significantly fewer studies were classified as primary interventions ($n=9$) than both secondary ($n=28$) and tertiary interventions ($n=45$) and, thus, the validity of these results may be in question.

Caretaker Participation

A moderator analysis was conducted to determine if attrition rates were higher among studies in which the mother attended the parent-training program alone ($n=21$), compared to studies examining mixed (mother and father) training groups ($n=54$). Caretaker participation was not found to moderate attrition rate, as the mean weighted attrition rate was not significantly different for “mother-alone” trials, 24%, relative to mixed samples in which mothers and fathers attended training programs, 27.1%, $Q_{\text{between}}(1)=2.35$, $p=.13$.

Discussion

Results from this meta-analysis suggest that the mean weighted attrition rate for clinic-based BPT programs across all trials is approximately 26.2% with attrition rates ranging from zero to 70% of participants dropping out by posttreatment in some cases. These results are consistent with previous reviews examining premature termination from clinic-based parent training programs, such as Forehand, Middlebrook, Rogers, and Steffe (1983), who reported an overall attrition rate of 28% across studies. The primary aim of this study was to highlight the threat of attrition in these programs to their overall effectiveness and add to the growing literature on this topic. It is noteworthy that the preliminary analyses utilized in the current study were designed to measure mean weighted attrition rates across studies and were not a direct assessment of treatment outcome or overall program effectiveness.

Follow-up analyses are needed to examine the relationship between program completion and treatment effectiveness or between moderator variables and treatment outcomes unrelated to attrition. It should also be noted, upon reviewing the results of this meta-analysis, that a number of studies met some, but not all, of the criteria for inclusion in this review and may be considered in subsequent analyses.

Factors related to socioeconomic status have been consistently associated with treatment outcome. Further, empirical evidence suggests that those from a lower socioeconomic background are more likely to experience barriers to treatment (Kazdin & Wassell, 2000) that prevent them from completing the treatment process and experiencing lasting benefits. Based on these previous findings, it was anticipated that larger effect sizes would be associated with those from disadvantaged backgrounds. Interestingly,

while the disadvantaged group produced a slightly higher mean weighted attrition rate than the non-disadvantaged group, this difference was not statistically significant. While this was an unanticipated finding, one explanation may be related to the influences of initial problem severity, which has been largely ignored through the literature examining effects of SES on BPT effectiveness (Leijten, Raaijmakers, de Castro, & Matthys, 2013). In other words, if problem behaviors among the disadvantaged group were not particularly severe at the onset of the intervention, then the effect of SES on attrition may have been less robust. Similarly, more severe behaviors among the non-disadvantaged group at the onset of treatment may have been associated with a greater effect. Other research indicates that the effects of SES are influenced by characteristics related to the program, such as whether the intervention is delivered in an individual or group format (e.g. individual vs. group)(Lundahl, Risser, & Lovejoy, 2005). Due to the preliminary nature of these findings, further analysis is needed to examine the relationship of SES and attrition rate when controlling for variables such as initial problem severity or other program-related characteristics that may influence the observed effects of SES.

Parent age has also been previously examined as a demographic variable found to predict outcomes and attrition rates in parent training programs. When subjected to meta-analytic procedures, maternal age has produced a small mean standardized effect size (Reyno & McGrath, 2006) suggesting that it is a reliable predictor of attrition. While there is less research available on whether father's age predicts treatment outcome, as the vast majority of parents who participate in parent-training programs are mothers, it is generally suggested that younger parents experience more practical barriers to treatment (Kazdin & Wassell, 2000). More specifically, younger parents are typically viewed as

higher risk for poor treatment outcomes due to issues related to lower socioeconomic status, higher levels of stress in the parental role, and fewer resources needed to cope with treatment demands (Kazdin & Wassell, 1999). Based on these assumptions, it was hypothesized that younger parents would be associated with higher rates of attrition, and results confirmed this hypothesis. Further research is needed to determine if younger parents would experience improvements in treatment outcome and remain in treatment longer if perceived barriers were addressed prior to or early on in the treatment process

It was also hypothesized that age of the child would moderate the rate of attrition from BPT programs. Results were consistent with this hypothesis, suggesting that attrition rates are higher among parents of older-aged children. Generally speaking, greater benefits have been found for younger children in BPT programs compared to older children approaching adolescence (Lundahl, Risser, & Lovejoy, 2005; Serketich & Dumas, 1996). It is hypothesized that this variability in treatment effectiveness across age groups is related to the developmental timing of program implementation. Findings of longitudinal studies examining developmental trajectories of atypical behavior patterns (e.g. Cote et al., 2006) suggest that early negative behavior patterns typically decline prior to children reaching adolescence. However, for the subset of children that maintain high levels of atypical behavior through childhood and adolescence, delaying implementation of a preventative or treatment program implies that the negative behavior patterns are more well-established in the child's repertoire than is the case with younger children. Additionally, the parents of older children are more set in their ways in terms of parenting styles. This may translate to more difficulty alleviating behavior problems in older children and higher levels of stress and feelings of helplessness for the parents

involved. However, due to the majority of studies in this analysis examining treatment outcomes in younger age groups (between three and seven years old) these results should be interpreted with caution.

Target behaviors were also introduced in the current study as a novel moderator of attrition. Categorization was determined based on reported behaviors or diagnoses among study participants. It was hypothesized that studies reporting the majority or all of the participants as having a clinical diagnosis of ODD/CD, AD/HD, or co morbid disorders would display higher attrition rates than those that did not report clinically diagnosed behaviors among participants. Results indicated variability among target behavior groups as the “mixed/co morbid” group and “general behaviors” group displayed significantly higher attrition rates than both the ODD/CD and the AD/HD groups. One possible explanation may be related to greater heterogeneity among behavioral symptoms in the “mixed/co morbid” and “general behaviors” categories. This heterogeneity could translate to a less focused intervention that is not as relevant to many of the parents in these mixed behavior groups. Follow-up analyses are recommended to examine whether target behavior still moderates attrition when controlling for age.

Moderators related to treatment design that were included in this preliminary analysis were number of sessions and treatment delivery format (i.e. individual vs. group). Previous literature has suggested that individually administered interventions lead to better outcomes, particularly among disadvantaged populations (Leijten et al., 2013). Based on the assumption that individually administered treatment provides a higher degree of personalization and focused attention on each individual participant, it was anticipated that attrition rates would be higher among group-administered treatments.

However, there was no significant difference between the two delivery formats in terms of effect size. One consideration is that this preliminary analysis was focused primarily on main effects of potential moderators of attrition. Follow-up analyses may examine potential interactions between treatment delivery format and variables related to SES. Interestingly, though, “mixed” delivery formats that provided an individual and a group component showed a significantly lower mean weighted attrition rate than both the individual and group formats. This implies that BPT programs may be most effective when they offer the social support of a group format and the more personalized approach of individual treatment.

In contrast to treatment delivery format, number of treatment sessions did not seem to influence attrition rate. These findings were inconsistent with the study hypothesis, as the more demanding and intrusive nature of longer interventions has been associated with lower attendance rates (Heinrichs, Bertram, Kuschel, & Halweg, 2005). Although, this finding may be useful as a higher number of sessions is typically needed before clinically significant results are achieved (Hanse, Lambert, & Forman, 2002). Assuming the participants who are attending fewer sessions are still attending enough sessions to achieve therapeutic benefit, there may be

In any treatment or prevention research, the level of experience of the provider must be taken into account when considering effect size (Gilham et al., 2001). This is a seemingly untapped area of research in the BPT literature, especially as it relates to attrition. In clinic-based interventions, while it is common to see program providers with extensive behavioral or mental health experience, “non-professionals” or lay providers (i.e. parent leaders, school personnel, group facilitators) are often used as a cost-effective

alternative that allows for widespread dissemination of programs to areas that may be underserved by behavioral or mental health professionals (Fisak, Richard, & Mann, 2011). It was anticipated that non-professionals, due to their lack of experience and training, would be less effective in the provider role and would be associated with higher rates of attrition. Results of the current study indicated that level of provider expertise was a significant moderator of attrition from BPT interventions. This finding implies that a more extensive training protocol for program providers may be necessary to ensure successful dissemination of these programs to more underserved areas. Further research examining the degree to which more extensive provider training influences attrition and overall BPT effectiveness is needed.

Level of intervention (e.g. primary, secondary, or tertiary) was introduced in the current study as a novel moderator of attrition. While this categorization is not a direct measure of behavioral severity, it was expected to reliably reflect the progression of child externalizing behavioral symptoms from nonexistent (i.e. primary interventions) to early appearances of symptoms (i.e. secondary interventions) to clinical-level symptoms (i.e. tertiary interventions). Based on previous findings associating child behavioral severity with higher levels of maternal depression, overall treatment outcome, and attrition (Reyno & McGrath, 2006), it was anticipated that rates of attrition would be higher among secondary and tertiary interventions with tertiary interventions reflecting the highest attrition rates. This hypothesis was partially supported as both secondary and tertiary interventions showed significantly higher mean weighted attrition rates than primary interventions. Interestingly, though, the mean weighted attrition rate across secondary interventions was also significantly higher than that of tertiary interventions,

which was inconsistent with the hypothesis. One possible explanation for the high rates of attrition in the secondary interventions may be related to parents leaving treatment due to parents feeling that behavioral symptoms have improved and intervention is no longer needed. Additionally, it is possible that there is a higher prevalence of strategies to increase retention (i.e. providing child care, transportation, monetary incentives) among the tertiary interventions that may have contributed to lower attrition rates than the secondary interventions. However, follow-up analysis is needed to better understand this phenomena.

As eluded to previously, mothers generally make up the majority of the population in BPT research. Most of the empirical evidence validating the efficacy of BPT involves mother-only groups or mixed mother and father groups (e.g. Bagner & Eyberg, 2003; Webster-Stratton, 1985). Within the limited research examining father-only parent training groups, attrition rates are typically some of the highest in the BPT literature (Helfenbaum-Kun & Ortiz, 2007). However, research suggests that when fathers join their spouses in parent training groups, there is reduced maternal attrition and need for better maintenance of treatment gains (Bagner & Eyberg, 2003). Similarly, when fathers are encouraged and given the opportunity to be involved in treatment, it has been reported that fathers are likely to attend treatment sessions at a rate similar to that of the child's mother (Bagner & Eyberg, 2003). Based on these findings, it was hypothesized that attrition rates would be lower among studies that involved mixed mother and father groups in relation to mothers-only groups. There was no significant difference in mean weighted attrition rates between the two groups. However, it is noteworthy that due to the preliminary nature of these findings and limited reporting of the number of spouses that

were included in mixed-group studies, it is unclear how many of the fathers in training programs were attending as part of a couple. Further analysis may provide a more extensive evaluation of these samples to determine an accurate percentage of spouses in each mixed group.

Limitations and Future Directions

Taken as a whole, results of the current study suggest that various moderators related to the intervention, parents involved, and the child all influence the rate of attrition in clinic-based BPT programs. Despite the progress that has been made in recent years in the development of various program modifications designed to increase retention and a notable shift towards a more public health model to increase program accessibility, attrition rates are still high. The current review highlights a number of limitations of research in this area and viable directions for future research. One limitation of the current study, which is commonly cited among relevant meta-analytic reviews, pertains to the reporting (or lack of reporting) of data relating to attrition and various moderators of interest. Certain potential moderators (e.g. ethnicity, single-parent status, maternal psychopathology) that have been commonly associated with treatment outcome and attrition were excluded from these preliminary analyses due to the extent of missing data across studies. Similarly, a number of relevant studies were excluded from analyses as a result of missing or insufficient attrition data. To facilitate empirical growth in this and similar areas of research, it is important that researchers are thorough in their reports of attrition information, basic demographic information for participants, specific details of

the intervention (i.e. delivery method, content covered), and outcome measure information (Kaminski et al., 2008).

In addition to reporting the number of participants lost to attrition, researchers must ensure that they are handling this data appropriately in regards to analysis, in order to both maintain a high ethical standard and produce reliable and valid findings that will be beneficial for the growing body of research. A variety of experimental and statistical procedures that are designed to preserve the validity of a study when attrition occurs may be effectively implemented in future clinical research on BPT. Useful experimental methods to address attrition include completers-only analysis, endpoint analysis, optimization, and time-controlled analysis (Flick, 1988). Other statistical approaches may include data replacement by regression, endpoint analysis with regression, and standardized change scores (Flick, 1988). The method that is most effective in controlling for attrition should be considered on a case-by-case basis and researchers, in addition to implementing the method, should report the reasoning and possible implications of using a particular method in their respective studies.

Another limitation that likely hinders the growth of attrition-related research relates to the lack of a universal, operational definition for attrition throughout the literature (Barrett et al., 2009). While it is generally agreed upon that attrition, in a research context, refers to the loss of participants throughout the course of treatment, there are inconsistencies in terms of the cut-off point at which participants are considered to be treatment dropouts. Across many studies, “dropping out” has been defined as failure to return to treatment after an intake assessment (Longo, Lent, & Brown, 1992), terminating treatment at any point without agreement from the therapist, regardless of

how many sessions were attended (Richmond, 1992), or failure to attend the last scheduled treatment session (Hatchett, Han, & Cooker, 2002). Many of these discrepancies in defining attrition may be based on a general lack of clarity of the point at which dropping out of treatment is actually problematic. For example, conventional wisdom suggests that attending at least 50% of a treatment program may be a reasonable amount of participation to achieve measurable benefits (Myers et al., 1992), while other sources claim that for at least half of individuals in treatment, an “adequate dose” of treatment requires a minimum of 11 to 13 sessions of an empirically validated intervention (Hansen, Lambert, & Forman, 2002). From a methodological perspective, these inconsistencies create complications as the reported findings of a study may be significantly influenced by the way that the authors choose to define attrition. Additionally, these inconsistencies inevitably make it more difficult to accurately assess treatment efficacy and provide meaningful solutions to amend the problem of attrition. For the sake of consistency, and to avoid methodological issues, this study defines attrition as attending at least one treatment session and terminating treatment prior to the last scheduled session.

Improving Engagement in Behavioral Parent Training

In order to avoid costly treatment outcomes and effectively amend the problem of attrition in BPT, more researchers in the area must first acknowledge the severity of the problem through increased reporting on attrition in intervention studies and then further examination of strategies for enhancing engagement in treatment. While a relatively small number of studies have reported attrition, significantly fewer studies have been conducted examining specific strategies for improving treatment retention and adherence.

In a review by Nock and Ferriter (2005), only twelve controlled studies with this aim were identified among child therapy studies with a parent training component. Among these twelve studies, strategies that were associated with lower rates of premature termination included the addition of a treatment component involving frequent supportive discussions of parent issues (Prinz & Miller, 1994) and a “parenting salary” of \$1/day for treatment adherence (Fleischman, 1979). Within the present study on BPT, of the studies that report attrition and are included in the analysis, only about 32% report using various strategies (i.e. providing transportation, child care, monetary incentives, or self-help materials) intended to address logistical and psychological barriers commonly associated with treatment (e.g. Nicholson & Sanders, 1999; Matos, Bauermeister, & Bernal, 2009; Helfenbaum-Kun & Ortiz, 2007). New advances in the field should incorporate more strategies to enhance engagement, reduce parental stress and address other negative cognitions, improve mindfulness, and increase levels of acceptance and commitment among high-risk populations.

There has been more movement in this direction in recent years with the development of several parent training programs that are deliberately designed to address some of the more prevalent barriers to treatment experienced by families who are at the greatest risk of dropping out. In a recent clinical trial, Chacko et al. (2008; 2009) introduced the Strategies to Enhance Positive Parenting (STEPP) program, which was designed to increase BPT engagement and improve group-based treatment outcomes for single-mothers of children with ADHD. Single motherhood has long been known to have unique effects on the process and outcomes of BPT, with single mothers experiencing significantly more practical barriers to treatment (Kazdin & Wassell, 2000) that

commonly lead to increased dropout, poor attendance, and limited therapeutic gains in BPT (Miller & Prinz, 1990). By altering and enhancing the traditional BPT content, format, and delivery, the STEPP program was able to effectively target many of these barriers at each stage of the treatment process. First, during the pretreatment phase, maternal cognitions, attitudes, and expectations regarding treatment and behavior change in children were systematically addressed. Open-ended questions were asked to mothers regarding their expectations about their child's involvement in treatment (e.g., How do you think your child will be involved in the treatment process?) as well as their own involvement in treatment (e.g., What role do you plan to have in the treatment process?), and any misconceptions or unrealistic expectations were discussed and clarified at intake. Additionally, other potential barriers to treatment were discussed and solutions were developed prior to the initiation of treatment (Chacko et al., 2008). Elements of this enhanced intake have also been utilized in similar studies involving low-income, urban parents with positive results (McKay et al., 1998; Nock & Kazdin, 2005). During treatment, to further increase engagement and social support, the STEPP program implemented a collaborative, group-based format in which mothers have the opportunity to discuss issues with other parents in smaller subgroups without having to directly involve the therapist. This format allows parents to provide supportive feedback, use one another as resources, and learn from similar peers (Chacko et al., 2008). Lastly, the STEPP program incorporated a systematic, manualized problem-solving treatment in which parents are taught how to effectively use and control emotions in problem solving, make decisions, and generate and implement alternative solutions. This component allowed the parent to identify specific, relevant difficulties and implement a flexible

treatment to address those (Chacko et al., 2008). These modifications successfully improved dysfunctional, maternal cognitions and expectations, problem solving, and parenting skills (Chacko, Wymbs, Chimiklis, Wymbs, & Pelham, 2012).

Other efforts to modify traditional BPT programs have included the previously referenced Participant Enhancement Intervention (PEI), introduced by Nock and Kazdin (2005), which is a brief intervention designed to increase parent engagement through prompted self-motivational statements within treatment and collaborative attempts to overcome potential barriers to treatment. More specifically, similar to the STEPP program, the PEI involves therapists engaging in pretreatment discussions with parents to address relevant problems related to transportation, negative perceptions about treatment, or a lack of support from others (Nock & Kazdin, 2005). Both the STEPP program and PEI, by modifying components of the traditional BPT format, were able to more specifically match individual parental difficulties to appropriate interventions, resulting in greater engagement among group members and lower levels of attrition when compared to traditional programs (Chacko et al., 2008; Nock & Kazdin, 2005). Durand and Heinman's Positive Family Intervention (PFI) (2008), also referred to as optimism training for parents, is another modified approach in which cognitive-behavioral therapy is incorporated into the parent training process to teach parents how to identify patterns in their own thoughts and feelings and then develop strategies for cognitive restructuring. More specifically, in addition to teaching new parenting skills, this intervention is designed to assist parents with pessimistic attitudes that may interfere with their ability to effectively implement these skills. A recent clinical trial examining the effects of this

treatment on child behavior resulted in greater reductions in child problem behavior in the PFI condition when compared to a traditional BPT approach.

Lastly, adjusting the treatment setting to better fit with needs of the parents or family has been shown to improve treatment outcomes. For example, studies have shown parents with children with more severe behavior problems as well as economically challenged families are more likely to enroll in and complete community-based, as opposed to clinic-based, training programs (Cunningham, Bremner, & Boyle, 1995). Therefore, tailoring BPT programs for delivery in schools and other community settings may help to provide a more accessible and cost-effective alternative to clinic-based treatment for many at-risk populations. However, the amount of research on community and school-based BPT programs is currently lacking, with 20% of studies in the current review examining community-based (e.g. community centers, etc.) treatment programs and only 16% examining school-based treatment programs. Further research is needed to determine the extent to which modifying traditional program format or setting to better match parent/family characteristics increases treatment retention.

With these considerations in mind, further research is needed in order to effectively amend the problem of attrition in BPT and related intervention programs. Specifically, there is a need for more studies focusing specifically on strategies to prevent attrition from occurring, as opposed to those simply providing BPT program evaluations. Researchers in this area should examine potential interactions between demographic, child, and treatment-related variables related to attrition that, when considered together, may help to guide the development of BPT programs in the future. Emphasis should continue to be placed on program modifications designed to address potential barriers to

treatment and specific strategies to enhance treatment engagement among those at risk of dropping out (e.g. STEPP, PEI, and PFI programs). Increases in both the reporting of relevant data, as well as the implementation of procedures to statistically control for attrition when it occurs, will help to build a more comprehensive and reliable body of attrition-related research. Additionally, BPT research aimed at determining a standardized definition of attrition to be utilized across studies may benefit future meta-analytic endeavors. Changes can be seen in recent years regarding the amount of empirical focus being placed on attrition, and as BPT programs continue to become more individualized and accessible to broader populations, it is anticipated that substantial increases in retention rates will be seen in the coming years.

References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington: American Psychiatric Publishing.
- Assemany, A. E., & McIntosh, D. E. (2002). Negative treatment outcomes of behavioral parent training programs. *Psychology in the Schools*, 39(2), 209-219.
- August, G. J., & Garfinkel, B. D. (1989). Behavioral and cognitive subtypes of ADHD. *Journal of the American Academy of Child & Adolescent Psychiatry*, 28(5), 739-748.
- August, G. J., & Garfinkel, B. D. (1990). Comorbidity of ADHD and reading disability among clinic-referred children. *Journal of Abnormal Child Psychology*, 18(1), 29-45.
- Baker, C. N., Arnold, D. H., & Meagher, S. (2011). Enrollment and attendance in a parent training prevention program for conduct problems. *Prevention Science*, 12, 126-138.
- Barker, E. D., & Maughan, B. (2009). Differentiating early-onset persistent versus childhood-limited conduct problem youth. *The American Journal of Psychiatry*, 166(8), 900-908.
- Barker, E. D., Oliver, B. R., Viding, E., Salekin, R. T., & Maughan, B. (2011). The impact of prenatal maternal risk, fearless temperament and early parenting on adolescent callous-unemotional traits: A 14-year longitudinal investigation. *Journal of Child Psychology and Psychiatry*, 52(8), 878-888.

- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family*, 54(4), 763-776.
- Barrett, M. S., Chua, W., Crits-Christoph, P., Gibbons, M. B., & Thompson, D. (2008). Early withdrawal from mental health treatment: Implications for psychotherapy practice. *Psychotherapy: Theory, Research, Practice, Training*, 45(2), 247-267.
- Broder, P. K., Dunivant, N., Smith, E. C., & Sutton, L. P. (1981). Further observations on the link between learning disabilities and juvenile delinquency. *Journal of Educational Psychology*, 73(6), 838-850.
- Campbell, S. H. (1995). Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 36(1), 113-149.
- Chacko, A., Wymbs, B. T., Chimiklis, A., Wymbs, F. A., & Pelham, W. E. (2012). Evaluating a comprehensive strategy to improve engagement to group-based behavioral parent training for high-risk families of children with ADHD. *Journal of Abnormal Child Psychology*, 40(8), 1351-1362.
- Chacko, A., Wymbs, B. T., Flammer-Rivera, L. M., Pelham, W. E., Walker, K. S., Arnold, F. W., & Herbst, L. (2008). A pilot study of the feasibility and efficacy of the Strategies to Enhance Positive Parenting (STEPP) program for single mothers of children with ADHD. *Journal of Attention Disorders*, 12(3), 270-280.
- Chacko, A., Wymbs, B. T., Wymbs, F. A., Pelham, W. E., Swanger-Gagne, M. S., Girio, E., & O'Connor, B. (2009). Enhancing traditional behavioral parent training for

- single mothers of children with ADHD. *Journal of Clinical Child and Adolescent Psychology*, 38(2), 206-218.
- Chang, L., Schwartz, D., Dodge, K. A., & McBride-Chang, C. (2003). Harsh Parenting in Relation to Child Emotion Regulation and Aggression. *Journal of Family Psychology*, 17(4), 598-606.
- Connell, S., Sanders, M. R., & Markie-Dadds, C. (1997). Self-directed behavioral family intervention for parents of oppositional children in rural and remote areas. *Behavior Modification*, 21(4), 379-408.
- Connolly, L., Sharry, J., & Fitzpatrick, C. (2001). Evaluation of a group treatment programme for parents of children with behavioural disorders. *Child and Adolescent Mental Health*, 6(4), 159-165.
- Côté, S., Vaillancourt, T., LeBlanc, J. C., Nagin, D. S., & Tremblay, R. E. (2006). The development of physical aggression from toddlerhood to pre-adolescence: A nationwide longitudinal study of Canadian children. *Journal of Abnormal Child Psychology*, 34(1), 68-82.
- Cunningham, C.E., Bremner, R.B., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behavior disorders: Utilization, cost effectiveness, and outcome. *Journal of Child Psychology and Psychiatry*, 36, 1141-1159.
- de Graaf, I., Speetjens, P., Smit, F., de Wolff, M., & Tavecchio, L. (2008). Effectiveness of the Triple P Positive Parenting Program on parenting: A meta-analysis. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 57(5), 553-566.

- Downey, D. B. (1995). When bigger is not better: Family size, parental resources, and children's educational performance. *American Sociological Review*, 60(5), 746-761.
- Durand, V. M., Hieneman, M., Clarke, S., Wang, M., & Rinaldi, M. L. (2013). Positive family intervention for severe challenging behavior I: A multisite randomized clinical trial. *Journal of Positive Behavior Interventions*, 15(3), 133-143.
- Fleischman, M. J. (1979). Using parenting salaries to control attrition and cooperation in therapy. *Behavior Therapy*, 10, 111– 116.
- Forehand, R., McMahon, R. J. (1981). *Helping the non-compliant child: A clinician's guide to parent training*. New York: Guilford Press.
- Forehand, R., Middlebrook, J., Rogers, T., & Steffe, M. (1983). Dropping out of parent training. *Behaviour Research and Therapy*, 21(6), 663-668.
- Frankel, F., & Simmons, J. Q. (1992). Parent behavioral training: Why and when some parents drop out. *Journal of Clinical Child Psychology*, 21(4), 322-330.
- Frick, P. J., Lahey, B. B., Christ, M. A., Loeber, R., & Green, S. (1991). History of childhood behavior problems in biological relatives of boys with attention-deficit hyperactivity disorder and conduct disorder. *Journal of Clinical Child Psychology*, 20(4), 445-451.
- Frick, P. J., Lahey, B. B., Loeber, R., Stouthamer-Loeber, M., Christ, M. G., & Hanson, K. (1992). Familial risk factors to oppositional defiant disorder and conduct disorder: Parental psychopathology and maternal parenting. *Journal of Consulting and Clinical Psychology*, 60(1), 49-55.

- Frick, P. J., Ray, J. V., Thornton, L. C., & Kahn, R. E. (2014). Can callous-unemotional traits enhance the understanding, diagnosis, and treatment of serious conduct problems in children and adolescents? A comprehensive review. *Psychological Bulletin*, 140(1), 1-57.
- Frick, P.J., & Dickens, C. (2006). Current perspectives on Conduct Disorder. *Current Psychiatry Reports*, 8, 59-72.
- Gross, D., Fogg, L., Webster-Stratton, C., Garvey, C., Julion, W., & Grady, J. (2003). Parent training of toddlers in day care in low-income urban communities. *Journal of Consulting and Clinical Psychology*, 71(2), 261-278.
- Haas, S. M., Waschbusch, D. A., King, S., & Walsh, T. M. (2015). Examining the role of callous-unemotional traits in the attributional styles and self-competence evaluations of children with conduct problems and ADHD. *Journal of Psychopathology and Behavioral Assessment*, 37(2), 196-206.
- Hansen, N.B., Lambert, M. J., & Forman, E. V. (2002). The psychotherapy dose-response effect and its implications for treatment delivery services. *Clinical Psychology: Science and Practice*, 9, 329-343.
- Harvey, E., Stoessel, B., & Herbert, S. (2011). Psychopathology and parenting practices of parents of preschool children with behavior problems. *Parenting: Science and Practice*, 11(4), 239-263.
- Hatchett, G. T., Han, K., & Cooker, P. G. (2002). Predicting premature termination from counseling using the Butcher Treatment Planning Inventory Assessment. *Counseling Psychologist*, 9, 156-163.

- Helpenbaum-Kun, E. D., & Ortiz, C. (2007). Parent-training groups for fathers of head start children: A pilot study of their feasibility and impact on child behavior and intra-familial relationships. *Child & Family Behavior Therapy*, 29(2), 47-64.
- Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, 36(4), 567-589.
- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, 102(2), 187-203.
- Kazdin, A. E. (1990). Premature termination from treatment among children referred for antisocial behavior. *Child Psychology & Psychiatry & Allied Disciplines*, 31(3), 415-425.
- Kazdin, A. E. (1995). *Conduct disorders in childhood and adolescence (2nd ed.)*. Thousand Oaks, CA, US: Sage Publications, Inc.
- Kazdin, A. E. (1996). Dropping out of child psychotherapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry*, 1(1), 133-156.
- Kazdin, A.E. (1997). Practitioner review: Psychosocial treatments for conduct disorder in children. *Journal of Child Psychology and Psychiatry*, 38, 161-178.
- Kazdin, A. E., & Wassell, G. (1998). Treatment completion and therapeutic change among children referred for outpatient therapy. *Professional Psychology: Research and Practice*, 29(4), 332-340.

- Kazdin, A. E., & Wassell, G. (2000). Predictors of barriers to treatment and therapeutic change in outpatient therapy for antisocial children and their families. *Mental health services research, 2*(1), 27-40.
- Lerner, R.M., Lewin-Bizan, S., & Warren, A.E.A. (2011) *Concepts and theories of human development*. In Bornstein, M.H. & Lamb, M.E. (Eds.) *Developmental science*. (pp 3-43). New York: Psychology Press.
- Longo, D., Lent, R., & Brown, S. (1992). Social cognitive variables in the prediction of client motivation and attrition. *Journal of Counseling Psychology, 39*, 447–452
- López-Romero, L., Romero, E., & Andershed, H. (2015). Conduct problems in childhood and adolescence: Developmental trajectories, predictors and outcomes in a six-year follow up. *Child Psychiatry and Human Development, 46*(5), 762-773.
- Markie-Dadds, C., & Sanders, M. R. (1999). Effectiveness of a self-directed program for parents of children at high and low risk of developing conduct disorder. Manuscript submitted for publication.
- Matos, M., Bauermeister, J. J., & Bernal, G. (2009). Parent- Puerto Rican preschool children with ADHD and behavior problems: A pilot efficacy study. *Family Process, 48*(2), 232-252.
- McKay, M. M., Stoewe, J., McCadam, K., & Gonzales, J. (1998). Increasing access to child mental health services for urban children and their caregivers. *Health & Social Work, 23*, 9–15.
- McNeil, C. B., Eyberg, S., Eisenstadt, T. H., Newcomb, K., & Funderburk, B. (1991). Parent-child interaction therapy with behavior problem children: Generalization

- of treatment effects to the school setting. *Journal of Clinical Child Psychology*, 20(2), 140-151.
- Menting, A. A., de Castro, B. O., & Matthys, W. (2013). Effectiveness of the Incredible Years parent training to modify disruptive and prosocial child behavior: A meta-analytic review. *Clinical Psychology Review*, 33(8), 901-913.
- Miller, G. E., & Prinz, R. J. (1990). Enhancement of social learning family interventions for childhood conduct disorder. *Psychological Bulletin*, 108(2), 291-307.
- Moffitt, T. E. (2007). *A review of research on the taxonomy of life-course persistent versus adolescence-limited antisocial behavior*. In D. J. Flannery, A. T. Vazsonyi, I. D. Waldman, D. J. Flannery, A. T. Vazsonyi, I. D. Waldman (Eds.) , The Cambridge handbook of violent behavior and aggression (pp. 49-74). New York, NY, US: Cambridge University Press.
- Mulvaney, M. K., & Mebert, C. J. (2007). Parental corporal punishment predicts behavior problems in early childhood. *Journal of Family Psychology*, 21(3), 389-397.
- Murray, J., Irving, B., Farrington, D. P., Colman, I., & Bloxsom, C. J. (2010). Very early predictors of conduct problems and crime: Results from a national cohort study. *Journal of Child Psychology and Psychiatry*, 51(11), 1198-1207.
- Myers, H. F., Alvy, K. T., Arrington, A., Richardson, M. A., Marigna, M., Huff, R., & ... Newcomb, M. D. (1992). The Impact of a Parent Training Program on Inner-City African-American Families. *Journal of Community Psychology*, 20(2), 132-147.
- Nagin, D., & Tremblay, R. E. (1999). Trajectories of boys' physical aggression, opposition, and hyperactivity on the path to physically violent and nonviolent juvenile delinquency. *Child Development*, 70(5), 1181-1196.

- Nicholson, J. M., & Sanders, M. R. (1999). Randomized controlled trial of behavioral family intervention for the treatment of child behavior problems in stepfamilies. *Journal of Divorce & Remarriage*, 30(3-4), 1-23.
- Nock, M. K., & Kazdin, A. E. (2005). Randomized controlled trial of a brief intervention for increasing participation in parent management training. *Journal of Consulting and Clinical Psychology*, 73(5), 872-879.
- Nock, M. K., & Ferriter, C. (2005). Parent management of attendance and adherence in child and adolescent therapy: A conceptual and empirical review. *Clinical Child and Family Psychology Review*, 8, 149-166.
- Ohan, J. L., Visser, T. W., Moss, R. G., & Allen, N. B. (2013). Parents' attitudes toward psychiatric labels for ADHD and depression. *Psychiatric Services*, 64(12), 1270-1273.
- Patterson, G. R. (1996). *Some characteristics of a developmental theory for early-onset delinquency*. In M. F. Lenzenweger, J. J. Haugaard, M. F. Lenzenweger, J. J. Haugaard (Eds.), *Frontiers of developmental psychopathology* (pp. 81-124). New York, NY, US: Oxford University Press.
- Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. *American Psychologist*, 44(2), 329-335.
- Pisterman, S., Firestone, P., McGrath, P., Goodman, J. T., Webster, I., Mallory, R., & Coffin, B. (1992). The effects of parent training on parenting stress and sense of competence. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, 24(1), 41-58.

- Prinz, R. J., & Miller, G. E. (1994). Family-based treatment for childhood antisocial behavior: Experimental influences on dropout and engagement. *Journal of Consulting and Clinical Psychology, 62*(3), 645-650.
- Reyno, S. M., & McGrath, P. J. (2006). Predictors of parent training efficacy for child externalizing behavior problem--a meta-analytic review. *Journal of Child Psychology and Psychiatry, 47*(1), 99-111.
- Richmond, R. (1992). Discriminating variables among psychotherapy dropouts from a psychological training clinic. *Professional Psychology: Research and Practice, 23*(2), 123-130.
- Robins, L. N. (1996). Deviant children grown up. *European Child & Adolescent Psychiatry, 5*, 44-46.
- Sanders, M. R., & Dadds, M. R. (1982). The effects of planned activities and child management procedures in parent training: An analysis of setting generality. *Behavior Therapy, 13*(4), 452-461.
- Sanders, M. R., Markie-Dadds, C., Tully, L. A., & Bor, W. (2000). The Triple P-Positive Parenting Program: A comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *Journal of Consulting and Clinical Psychology, 68*(4), 624-640.
- Sangawi, H. S., Adams, J., & Reissland, N. (2015). The effects of parenting styles on behavioral problems in primary school children: A cross-cultural review. *Asian Social Science, 11*(22), 171-186.

- Scott, S., Knapp, M., Henderson, J., & Maughan, B. (2001). Financial cost of social exclusion: Follow up study of antisocial children into adulthood. *BMJ: British Medical Journal*, 323(7306), 191.
- Serketich, W. J., & Dumas, J. E. (1996). The effectiveness of behavioral parent training to modify antisocial behavior in children: A meta-analysis. *Behavior Therapy*, 27(2), 171-186.
- Shaw, D. S., Gilliom, M., Ingoldsby, E. M., & Nagin, D. S. (2003). Trajectories leading to school-age conduct problems. *Developmental Psychology*, 39(2), 189-200.
- Stewart, M. A., DeBlois, C. S., & Cummings, C. (1980). Psychiatric disorder in the parents of hyperactive boys and those with conduct disorder. *Child Psychology & Psychiatry & Allied Disciplines*, 21(4), 283-292.
- Stoiber, K. C., & Kratochwill, T. R. (2000). Empirically supported interventions and school psychology: Rationale and methodological issues—Part I. *School Psychology Quarterly*, 15(1), 75-105.
- Thomas, R., & Zimmer-Gembeck, M. J. (2007). Behavioral outcomes of Parent-Child Interaction Therapy and Triple P-Positive Parenting Program: A review and meta-analysis. *Journal of Abnormal Child Psychology*, 35(3), 475-495.
- Thompson, R., Tabone, J. K., Litrownik, A. J., Briggs, E. C., Hussey, J. M., English, D. J., & Dubowitz, H. (2011). Early adolescent risk behavior outcomes of childhood externalizing behavioral trajectories. *The Journal of Early Adolescence*, 31(2), 234-257.

- Tremblay, R. (2010). Developmental origins of disruptive behaviour problems: the 'original sin' hypothesis, epigenetics and their consequences for prevention. *Journal of Child Psychology and Psychiatry*, 51(4), 341-367.
- Trentacosta, C. J., & Shaw, D. S. (2009). Emotional self-regulation, peer rejection, and antisocial behavior: Developmental associations from early childhood to early adolescence. *Journal of Applied Developmental Psychology*, 30(3), 356-365.
- Trentacosta, C. J., Hyde, L. W., Goodlett, B. D., & Shaw, D. S. (2013). Longitudinal prediction of disruptive behavior disorders in adolescent males from multiple risk domains. *Child Psychiatry and Human Development*, 44(4), 561-572.
- Tung, I., & Lee, S. S. (2014). Negative parenting behavior and childhood oppositional defiant disorder: Differential moderation by positive and negative peer regard. *Aggressive Behavior*, 40(1), 79-90.
- Van As, N. C., & Janssens, J. M. (2002). Relationships between child behavior problems and family functioning: A Literature Review. *International Journal of Child and Family Welfare*, 5(1-2), 40-51.
- Waschbusch, D. A., Walsh, T. M., Andrade, B. F., King, S., & Carrey, N. J. (2007). Social problem solving, conduct problems, and callous-unemotional traits in children. *Child Psychiatry and Human Development*, 37(4), 293-305.
- Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct-disordered children. *Journal of Consulting and Clinical Psychology*, 52(4), 666-678.

- Webster-Stratton, C. (1989). Systematic comparison of consumer satisfaction of three cost-effective parent training programs for conduct problem children. *Behavior Therapy*, 20(1), 103-115.
- Webster-Stratton, C. (1990). Enhancing the effectiveness of self-administered videotape parent training for families with conduct-problem children. *Journal of Abnormal Child Psychology*, 18(5), 479-492.
- Webster-Stratton, C., & Hammond, M. (1990). Predictors of treatment outcome in parent training for families with conduct problem children. *Behavior Therapy*, 21(3), 319-337.
- Webster-Stratton, C., Kolpacoff, M., & Hollinsworth, T. (1988). Self-administered videotape therapy for families with conduct-problem children: Comparison with two cost-effective treatments and a control group. *Journal of Consulting and Clinical Psychology*, 56(4), 558-566.
- Webster-Stratton, C., Reid, J., & Hammond, M. (2001). Social skills and problem-solving training for children with early-onset conduct problems: Who benefits? *Journal of Child Psychology and Psychiatry*, 42(7), 943-952.
- Wilgosh, L., & Paitich, D. (1982). Delinquency and learning disabilities: More evidence. *Journal of Learning Disabilities*, 15(5), 278-279.

Vita

EDUCATION

Master of Science in Psychological Sciences

2015-2017

University of North Florida, Jacksonville, FL

B.S. in Psychology

2006

Mississippi College, Clinton, MS

RESEARCH ACTIVITY

Graduate Student Research

2015-2017

Department of Psychology, University of North Florida

Advisor: Dr. Angela Mann

- Conducting a meta-analysis on the attrition problem in behavioral parent training programs.
- Synthesizing data from relevant literature to determine variables most significant in contributing to dropout.

RELEVANT WORK EXPERIENCE

The Jericho School

2015-2016

Behavior Assistant

- Assisting certified behavior analysts in providing comprehensive, individualized instruction to children with autism and other developmental disabilities.
- Implementing functional assessments of individual clients in their educational environments.

CONFERENCE PRESENTATIONS

2016

- Michael, B., Levert, D., Deluca, N., & Mann, A. (2016, November). Attrition rates in behavioral parent training programs. Oral presentation delivered at the annual conference of the Florida Association of School Psychologists.
- Michael, B., Levert, D., Deluca, N., & Mann, A. (2016, September). Attrition rates in behavioral parent training programs. Poster presented at the annual conference of the Florida Association for Behavior Analysis.
- Michael, B., Levert, D., & Mann, A. (2016, April). Drop-out rates in behavioral parent training programs. Poster presented at the 15th Annual Showcase of Osprey Advancements in Research and Scholarship (SOARS) conference.

OTHER RESEARCH EXPERIENCE

Student Research

2006

Department of Psychology, Mississippi College

- Conducted quantitative research study on most effective teaching strategies in motivating unmotivated students to learn.
- Selected participants for study through process of random sampling of students across three different low-income school zones.
- Observed teachers in classroom settings and collaborated with faculty and other undergraduate students to design and distribute student interest surveys examining quantifiable variables related to student motivation and various teaching methods.
- Concluded from observations and survey results that students felt the greatest sense of motivation when teachers maintained high expectations among all students, provided positive reinforcement throughout lessons, and allowed students to recognize and correct their own mistakes through higher order questioning.

SKILLS AND QUALIFICATIONS

- Certified in Professional Crisis Management

Research

- Proficient in research methods, task organization, data collection, and analysis.
- Extensive knowledge of web-based proprietary databases and library resources.
- Strong written and verbal communication skills.

Computer

- Proficient in Microsoft Word, Excel, and PowerPoint.
- Knowledgeable in SPSS.

PROFESSIONAL AFFILIATIONS

- Member of First Coast Association for Behavior Analysis (FCABA)

REFERENCES

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